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1.0 INTRODUCTION

Atlantic Highly Migratory Species (HMS) [1] are managed under the dual authority of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (Magnuson-Stevens Act) and the Atlantic Tunas Convention Act (ATCA). Under the Magnuson-Stevens Act, the National Marine Fisheries Service (NMFS) must, consistent with the National Standards, manage fisheries to maintain optimum yield (OY) by rebuilding overfished fisheries and preventing overfishing. Under ATCA, NMFS is authorized to promulgate regulations, as may be necessary and appropriate, to implement the recommendations from the International Commission for the Conservation of Atlantic Tunas (ICCAT). The management measures proposed for this rulemaking, which primarily address Atlantic shark issues, are taken under the authority of the Magnuson-Stevens Act. In addition to these two laws, any management measures must also be consistent with other applicable laws including, but not limited to, the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), and the Coastal Zone Management Act (CZMA).

Chapters 2 and 4 of this document provide a description of the alternatives and the analyses of the potential impacts. Chapter 3 provides a description of the fishery and Chapter 5 discusses any mitigating measures regarding the alternatives. Chapters 6, 7, and 8 fully analyze the economic impacts of the alternatives and address the requirements of a Regulatory Impact Review (RIR) and Initial Regulatory Flexibility Analysis (IRFA). Chapter 9 provides the community profiles and social impact analysis. Chapter 10 describes consistency with the National Standards, other requirements of the MSA, and other applicable law.

The National Marine Fisheries Service (NMFS) is proposing management measures implemented via rulemaking that would reduce fishing mortality and effort to rebuild overfished Atlantic shark species while ensuring that a limited shark fishery can be maintained.

1.1 Brief Management History

This section provides a brief overview of HMS management. More detail regarding the management history of Atlantic shark management can be found in Section 3.1.

In the 1980s, the Regional Fishery Management Councils were responsible for the management of Atlantic HMS. Thus, in 1985 and 1988, the five Councils finalized joint FMPs for swordfish and billfish, respectively. In 1989, the Councils requested that the Secretary of Commerce (Secretary) manage Atlantic sharks. NMFS finalized a shark FMP in 1993. Atlantic Tunas did not have an FMP until 1999.

On November 28, 1990, the President of the United States signed into law the Fishery Conservation Amendments of 1990 (Pub. L. 101-627). This law amended the Magnuson Fishery

[1]The Magnuson-Stevens Act, at 16 U.S.C. 1802(14), defines the term "highly migratory species" as tuna species, marlin (*Tetrapturus* spp. and *Makaira* spp.), oceanic sharks, sailfishes (*Istiophorus* spp.), and swordfish (*Xiphias gladius*). Further, the Magnuson-Stevens Act, at 16 U.S.C. 1802(27), defines the term "tuna species" as albacore tuna (*Thunnus alalunga*), bigeye tuna (*Thunnus obesus*), bluefin tuna (*Thunnus thynnus*), skipjack tuna (*Katsuwonus pelamis*), and yellowfin tuna (*Thunnus albacares*).

Conservation and Management Act (later renamed the Magnuson-Stevens Fishery Conservation and Management Act or Magnuson-Stevens Act) and gave the Secretary of Commerce (Secretary) the authority (effective January 1, 1992) to manage HMS in the exclusive economic zone (EEZ) of the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea under authority of the Magnuson-Stevens Act (16 U.S.C. §1811). This law also transferred from the Fishery Management Councils to the Secretary, effective November 28, 1990, the management authority for HMS in the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea (16 U.S.C. §1854(f)(3)).[1] At this time, the Secretary delegated authority to manage Atlantic HMS to NMFS.

Under the Magnuson-Stevens Act, NMFS must maintain OY of each fishery by preventing overfishing and rebuilding overfished stocks. To do this, NMFS must, among other things, consider the National Standards, including using the best scientific information and considering impacts on residents of different States, efficiency, costs, fishing communities, bycatch, and safety at sea (16 U.S.C. §1851 (a)(1-10)). The Magnuson-Stevens Act also has a specific section that addresses preparing and implementing FMPs for Atlantic HMS (16 U.S.C. §1854 (g)(1)(A-G)). In summary, the section includes, but is not limited to, requirements to:

- Consult with and consider the views of affected Councils, Commissions, and advisory groups;
- Evaluate the likely effects of conservation and management measures on participants and minimize, to the extent practicable, any disadvantage to U.S. fishermen in relation to foreign competitors;
- Provide fishing vessels with a reasonable opportunity to harvest any allocation or quota authorized under an international fishery agreement;
- Diligently pursue comparable international fishery management measures; and,
- Ensure that conservation and management measures promote international conservation of the affected fishery, take into consideration traditional fishing patterns of fishing vessels, are fair and equitable in allocating fishing privileges among U.S. fishermen and do not have economic allocation as the sole purpose, and promote, to the extent practicable, implementation of scientific research programs that include the tagging and release of Atlantic HMS.

1.2 Rebuilding and Preventing Overfishing of Atlantic Sharks

Under National Standard (NS) 1 of the Magnuson-Stevens Act (50 CFR 600.310), NMFS is required to "prevent overfishing while achieving, on a continuing basis, the [Optimum yield (OY)] from each fishery for the U.S. fishing industry." In order to accomplish this, NMFS must determine the maximum sustainable yield (MSY) and specify status determination criteria to allow a determination of the status of the stock. In cases where the fishery is overfished or where overfishing is occurring, NMFS must take action to rebuild the stock (by specifying rebuilding targets) or take action to prevent overfishing. In the Consolidated HMS FMP, NMFS

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outlined these status determination criteria and a set of rebuilding targets. This amendment does not change these criteria or targets.

On February 14, 2007 (72 FR 7016) NMFS published a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) to develop alternatives for guidance regarding annual catch limits (ACLs) and accountability measures (AMs) and other overfishing provisions of the Magnuson-Stevens Act. Both ACLs and AMs are new requirements of Magnuson-Stevens Act. The intent is to revise the NS1 guidelines consistent with these new requirements through a proposed and final rule before the end of 2007. Per section 104(b) of the Magnuson-Stevens Act, these ACL and AM requirements would take effect in fishing year 2010, for stocks determined by the Secretary of Commerce to be undergoing overfishing. Stocks not determined to be undergoing overfishing will need ACLs and AMs by 2011, including stocks with unknown or undefined status regarding overfishing (*i.e.*, data poor stocks). Fish stocks determined to be overfished by the Secretary after July 12, 2009, would need a FMP, FMP amendment, or proposed regulations to initiate a rebuilding plan for overfished stocks within one year. Despite the fact that this FMP amendment would likely be finalized before the final revised guidelines for NS 1 are completed, NMFS intends for the management measures included for rebuilding overfished sharks and preventing overfishing of sharks to be consistent, as much as possible, with the definition, or forthcoming criteria, of ACLs and AMs. As such, the specific quotas noted in this draft amendment could change by the final Amendment as a result of the rulemaking to update the NS1 guidelines.

Rebuilding Targets and Status Determination Criteria in the Consolidated HMS FMP

According to the definition at § 600.310 (d) of the Magnuson-Stevens Act overfishing occurs whenever a stock or stock complex is subjected to a rate or level of fishing mortality that jeopardizes its capacity to produce MSY on a continuing basis. The Consolidated HMS FMP established the maximum fishing mortality threshold (MFMT) as F_{MSY}. F_{MSY} is defined as the fishing mortality level necessary to produce MSY on a continuing basis. If the MFMT exceeds F_{MSY} for more than one year then the stock is considered to be subject to overfishing, and remedial action must be taken. This is the current situation with sandbar and dusky sharks.

The HMS FMP established the minimum stock size threshold (MSST) as $(1\text{-}M)B_{MSY}$ when natural mortality (M) is less than 0.5. Most species of sharks have M less than 0.5. When the stock falls below MSST, the stock is overfished and remedial action must be taken to rebuild the stock. This is the current situation for sandbar, dusky, and porbeagle sharks.

Stocks are considered rebuilt when current biomass (B) levels are equal to B_{MSY}. B_{MSY} is the level of stock abundance at which harvesting the resource can be sustained on a continual basis at the level necessary to support MSY. Stocks are considered healthy when F is less than or equal to $0.75\ F_{MSY}$ and B is greater than or equal to B_{OY} (the biomass level necessary to produce OY on a continuing basis). Blacktip sharks in the Gulf of Mexico region are considered healthy; however, the 2005/2006 assessment recommended that catches of blacktip sharks in this region should not increase.

Unlike past assessments, the 2005/2006 LCS stock assessment determined that it is inappropriate to assess the LCS complex as a whole and determined that status of the complex is

unknown. This is due to the variation in life history parameters across species in the complex, different intrinsic rates of increase, and different catch and abundance data for all the species included in the LCS complex. Therefore, NMFS is examining alternative options to managing the LCS complex as a whole, which are described in more detail in Chapters 2 and 4. Similarly, the assessment concluded that blacktip sharks in the South Atlantic region are unknown because the assessment was unable to provide estimates of stock status or reliable population projections. As a result, the assessment recommended that current catch levels should not change.

The 1999 FMP for Atlantic HMS established that management measures for all HMS should have at least a 50-percent chance of reaching the target reference points used in developing rebuilding projections. This target is consistent with the technical guidelines for National Standard 1. The 1997 shark quota rule used a 50-percent probability in order to ensure that the stock levels were maintained and did not decline further while a rebuilding plan was developed (April 7, 1997, 62 FR 16647). However, as described in the 1999 FMP for Atlantic Tunas, Swordfish and Sharks and the 2006 Consolidated HMS FMPs, 50-percent is minimally acceptable for sharks. In both the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks and the 2003 Amendment 1 to that FMP, NMFS used a 70-percent probability to determine the rebuilding plan for the LCS to ensure that the intended results are actually realized.

Compared to other HMS and other fish species, many shark species are slow growing, take a long time to mature (*e.g.*, sandbar sharks mature between 12 and 15 years), have few pups per brood, and generally reproduce every other or every three years (*e.g.*, the sandbar shark has an average of eight to nine pups every other year). Given these life history traits, many shark species have a low reproductive potential. Moreover, while there is data for certain shark species, many other stocks are considered data poor, resulting in a degree of uncertainty in shark management because of the paucity of biological and/or fishing data available for some species. Such data constraints make it difficult to manage most sharks on a species basis. However, as a step towards species-specific management, in this amendment, NMFS has removed sandbar sharks from the LCS complex and has defined a new complex as "non-sandbar LCS," which is comprised of silky, tiger, blacktip, spinner, bull, lemon, nurse, scalloped hammerhead, great hammerhead, and smooth hammerhead sharks. Given most sharks have low reproductive potential, long longevity, and slow growth, in this amendment to the Consolidated HMS FMP, NMFS will use a 70-percent chance of success in order to ensure that shark stocks rebuild.

National Standard 1 and Determining the Rebuilding Timeframe

Under the National Standard 1 Guidelines, if a stock is overfished, NMFS is required to "take remedial action by preparing an FMP, FMP amendment, or proposed regulation...to rebuild the stock or stock complex to the MSY level within an appropriate time frame" (50 CFR 600.310(e)(3)(ii)). Additionally, "in cases where a stock or stock complex is overfished, [the] action must specify a time period for rebuilding the stock or stock complex that satisfies the requirements of section 304(e)(4)(A) of the Magnuson-Stevens Act." The time frame to rebuild the stock or stock complex depends on a number of factors including:

- The status and biology of the stock or stock complex;
- Interactions between the stock or stock complex and other components of the marine ecosystem;

• The needs of the fishing communities;
• Recommendations by international organizations in which the United States participates; and
• Management measures under an international agreement in which the United States participates.

The lower limit of the specified time frame for rebuilding is determined by the status and biology of the stock and "is defined as the amount of time that would be required for rebuilding if fishing mortality were eliminated entirely" (50 CFR 600.310 (e)(4)(ii)(B)(1)).

The National Standard 1 Guidelines specify two strategies for determining the rebuilding time frame. The first strategy (50 CFR 600.310 (e)(4)(ii)(B)(2)) states that:

> "[i]f the lower limit is less than 10 years, then the specified time period for rebuilding may be adjusted upward to the extent warranted by the needs of fishing communities and recommendations by international organizations in which the United States participates, except that no such upward adjustment can result in the specified time period exceeding 10 years, unless management measures under an international agreement in which the United States participates dictate otherwise."

The second strategy (50 CFR 600.310 (e)(4)(ii)(B)(3)) specifies that:

> "[i]f the lower limit is 10 years or greater, then the specified time period for rebuilding may be adjusted upward to the extent warranted by the needs of fishing communities....except that no such upward adjustment can exceed the rebuilding period calculated in the absence of fishing mortality, plus one mean generation time or equivalent period based on the species' life-history characteristics."

2005/2006 Stock Assessments and Rebuilding Timeframe for Sandbar Sharks

The 2005/2006 LCS stock assessment conducted assessments for sandbar sharks, blacktip sharks, and the LCS complex.[1] Unlike past assessments, the 2005/2006 LCS complex assessment determined that it is inappropriate to assess the LCS complex as a whole, and the Agency determined that the status of the LCS complex is unknown. Results of the sandbar shark stock assessment determined that sandbar sharks are overfished (Spawning Stock Fecundity (SSF)[1] $2004/SSF_{MSY} = 0.72$) and overfishing is occurring ($F2004/F_{MSY} = 3.72$). The assessment recommended a sandbar specific total allowable catch (TAC) level and a corresponding rebuilding timeframe. Because the LCS complex is no longer appropriate for assessment purposes, and specific recommendations were made for sandbar sharks, NMFS is setting a separate rebuilding plan for sandbar sharks in this amendment. One objective of this amendment is to ensure that fishing mortality levels for sandbar sharks are maintained at or below levels that would result in a 70-percent probability of rebuilding in the timeframe recommended by the assessment.

[1]Spawning stock fecundity (SSF) or spawning stock number (SSN) was used as a proxy of biomass since biomass (B) does not influence pup production in sharks.

The base-case model from the 2005/2006 assessment for sandbar sharks provided probable values for future population condition and status. In all cases, OY is the yield from a fishery that will provide the greatest overall benefit to the nations, particularly with respect to food production and recreational opportunities and taking into account the protection of marine ecosystems. As such, the TAC recommended by the stock assessment is considered OY. The stock assessment discussed three rebuilding scenarios, including: rebuilding timeframe under no fishing; a TAC corresponding to a 50-percent probability of rebuilding by 2070; and a TAC corresponding to a 70-percent probability of rebuilding by 2070. Under no fishing, the stock assessment estimated that sandbar sharks would rebuild in 38 years. Adding a generation time (28 years), as described under NS 1 for species that require more than 10 years to rebuild even if fishing mortality were eliminated entirely, the target year for rebuilding the stock was estimated to be 2070 (28 years mean generation time + 38 years to rebuild if fishing mortality eliminated = 66 years, starting in 2008). Assuming fishing mortality from 2005 to 2007 would be maintained at levels similar to 2004 (the last year of data used in the stock assessment was from 2004) and that there would be a constant TAC between 2008 and 2070, the assessment estimated that sandbars would have a 70-percent probability of rebuilding by 2070 with a TAC of 220 mt whole weight (ww) (158 mt dressed weight (dw))/year and a 50-percent probability of rebuilding by 2070 with a TAC of 240 mt ww (172 mt dw)/year. As described previously, NMFS is using the 70-percent probability of rebuilding to ensure that the intended results of a management action are actually realized given the life history traits of sandbar sharks.

Measures considered in this amendment include modifying species complexes, reducing commercial quotas, accounting for recreational landings and dead discards, implementing strict retention limits, increasing reporting, and limiting the number of participants authorized to land sandbar sharks. Such measures are necessary to ensure that the rebuilding timeframe is met for sandbar sharks. The amendment also includes potential AMs (e.g., adjusting commercial quotas based on overharvests and counting all unclassified sharks as sandbar sharks) that could be used to ensure rebuilding by 2070. Sandbar sharks would be separated from the LCS complex and the quota would be reduced to 116.6 mt dw/year, which would bring the total TAC to 158.3 mt dw (220 mt ww) once other sources of sandbar sharks mortality are accounted for. At this time, NMFS considers the 220 mt ww to be the ACL required by Magnuson-Stevens Act. NMFS is also building in a buffer zone of 20 percent for the commercial fishery (under the preferred alternative, NMFS would close the fishery when reports indicate that 80 percent of the quota has been taken) as an accountability measure to decrease the likelihood that quotas are exceeded. It is important to note that, in the future, the ACL of 220 mt ww might change when the final rule is published for new Magnuson-Stevens Act requirements regarding ACLs (per the notice of intent published February 14, 2007, 72 FR 7016).

2005 Stock Assessment and Rebuilding Timeframe for Dusky Sharks

Dusky sharks have been a prohibited species since 2000. Prior to that time, they were managed in the LCS complex. The first species-specific stock assessment for dusky sharks was conducted by the Southeast Fisheries Science Center (SEFSC) in 2006 (the SEFSC started the assessment before the decision was made to conduct stock assessments using the Southeast Data Assessment and Review (SEDAR) process; the last year of data used in the assessment was 2003). This stock assessment employed three formal stock assessment methodologies to determine stock status, including: surplus production modeling, age-structured production catch-

free modeling, and age-structured production modeling. Within each scenario, baseline scenarios were identified that should be regarded as the most realistic. All methodologies and scenarios explored (approximately 30 scenarios) indicated that dusky sharks are overfished (SSF_{2003}/SSF_{MSY} = 0.15-0.47). Of the scenarios explored, 27 of 30 indicated that dusky sharks are experiencing overfishing (F_{2003}/F_{MSY} = 1.68 – 1,180). The SEFSC was not able to determine which scenario was the most appropriate to use for management purposes. Therefore, NMFS is providing the range of SSF and F estimates from the baseline methodologies.

Projections incorporating the Consolidated HMS FMP status determination criteria were completed with three modeling approaches. Projections to the year 2100 with no fishing mortality indicate that the stock would only have a nine-percent probability of being rebuilt in that timeframe. This means it would take much longer to reach the 70-percent probability success threshold for rebuilding as described earlier. Projections with the age-structured production model (i.e., baseline scenario) predicted that dusky sharks could be rebuilt with a 70-percent probability by the year 2400. Other projections from the three modeling approaches indicate that rebuilding of dusky sharks will take between 100-400 years.

As mentioned earlier, the harvest of dusky sharks has been prohibited since 2000. Despite this fact, they are still overfished with overfishing occurring. NMFS feels this is at least partly due to the fact that they are caught as bycatch, predominantly in longline fisheries. Fishermen are likely to catch dusky sharks when targeting sandbar sharks with BLL gear. Without a definite baseline model from which to chose, NMFS cannot determine an appropriate TAC or rebuilding timeframe. Rather, NMFS' target is reducing mortality of dusky sharks as bycatch species. By reducing dusky shark bycatch, NMFS can reduce dusky shark mortality to the extent practicable. NMFS is also assuming that the rebuilding timeframe for dusky sharks will be at least 100 years. Thus, given the rebuilding timeframe for dusky sharks and their proclivity to be caught on BLL gear, the measures proposed in this amendment focus on reducing bycatch of dusky sharks in BLL fisheries. The preferred measures included would limit the number of vessels that are authorized to land sandbar sharks. There would also be a finite number of trips that would be taken targeting sandbar sharks as the quota for sandbar sharks would be reduced by approximately 80 percent. Once this quota was met, there would be no more targeting or possession of sandbar sharks or other LCS. Trips targeting sandbar sharks would also be subject to 100 percent Federal observer coverage, therefore, the Agency would be attaining near real-time information on catch composition from those vessels that are most likely to be catching dusky sharks. This would allow the Agency to respond and implement additional measures if necessary.

Implementing a more restrictive retention limit for non-sandbar LCS (22 fish/vessel/trip) would also result in reduced fishing effort targeting sharks with BLL gear. NMFS is also considering not allowing dusky sharks for public display, limiting the number of dusky sharks authorized for research, not allowing certain species of sharks that look like dusky sharks to be possessed in recreational fisheries, maintaining the mid-Atlantic shark closed area, and implementing additional time/area closures for BLL gear recommended by the SAFMC in their Amendment 14A. These measures are all expected to reduce effort and fishing mortality, which will increase the likelihood of rebuilding dusky sharks in the allotted timeframe (100-400 years). Closing both the sandbar and non-sandbar LCS season when either quota has reached 80 percent

would also reduce dusky shark interactions as overall fishing effort with BLL gear would decrease.

Despite not having a definitive TAC, NMFS does have some AMs if catch of dusky sharks in the commercial fishery is higher than expected (*e.g.*, if catches are higher than those estimated in the analyses described in Chapter 4). Under the proposed measures, NMFS could take several measures depending on the situation. In the research fishery, if dusky catch is high by a particular vessel or in a particular region, NMFS could stop that trip or stop all research trips in that region and/or time. Additionally, if after reviewing the data from a particular year, NMFS decides the catch was too high, NMFS could adjust the research protocol and reduce effort or modify gear requirements, as needed. For the non-research trips, NMFS could either reduce the retention limit in an attempt to reduce effort or work with the appropriate regional fishery management council to limit effort in that fishery.

2005 Stock Assessment and Rebuilding Timeframe for Porbeagle Sharks

A stock assessment was conducted for North Atlantic porbeagle sharks in 2005 by the Canadian Department of Fisheries and Oceans. This assessment was reviewed by NMFS and determined to be the best available science and appropriate for use in U.S. domestic management. Results indicate that porbeagle sharks are overfished (Spawning Stock Number $(SSN)_{2004}/SSN_{MSY}$ = 0.15-0.32), however, overfishing is not occurring (F_{2004}/F_{MSY} = 0.83). The assessment recommended that there is a 70-percent probability of rebuilding in 100 years if F levels are maintained at or below 0.04 (current F level). As such, NMFS is establishing the rebuilding timeframe to be 100 years.

The proposed measures in the amendment would prohibit landings of porbeagle sharks in commercial and recreational fisheries. Commercial landings of porbeagle sharks are well below the 90.2 mt dw/year quota allocated for this sector and recreational landings generally only occur in a small number of tournaments in the Northeastern United States (NMFS, 2006). While the United States is not responsible for a large proportion of the porbeagle sharks landed in the Northwest Atlantic, prohibiting landings of porbeagle sharks in all sectors would increase the likelihood that fishing mortality remains below 0.04 and rebuilding occurs in the 100 years. NMFS realizes that the Canada is responsible for the rebuilding of this stock, since a directed fishery does not exist for porbeagle sharks in the United States. However, prohibiting the retention of porbeagles would also prevent fishing effort from increasing in the future. NMFS still expects a small number of porbeagle sharks to be caught and killed as bycatch each year. As such, while the prohibiting landings of porbeagle sharks should reduce landings to zero, NMFS is establishing a TAC of 10.4 mt dw/year to account for landings that may occur illegally, dead discards, and/or landings outside of NMFS jurisdiction. This TAC is based on average commercial landings and dead discards between 2003-2005. If the TAC is exceeded, the Agency may explore additional accountability measures, including reducing the TAC or other management measures as necessary.

2005/2006 Assessments for Blacktip Sharks

The 2005/2006 stock assessment assessed blacktip sharks for the first time as two separate populations: Gulf of Mexico and Atlantic. Blacktips were assessed separately in the

two regions based on tagging studies that suggested that the stocks are geographically distinct and isolated. NMFS has declared the status of the Gulf of Mexico blacktip shark population is not overfished with no overfishing occurring (November 7, 2007, 71 FR 65086). This assessment also indicated that the current status of the blacktip shark population in the South Atlantic region is unknown. NMFS has declared the status of the South Atlantic blacktip shark population to be unknown (November 7, 2007, 71 FR 65086). The results of these stock assessments indicate that the Gulf of Mexico population is healthy and that the South Atlantic population is unknown. As a result, NMFS is implementing management measures to ensure that current catches do not increase in order to keep these populations at sustainable levels consistent with advice from the stock assessment. NMFS is not implementing a rebuilding plan for blacktip sharks.

1.3 Need for Action

As described above, based on the results of the 2005 Canadian porbeagle shark stock assessment, the 2006 dusky shark stock assessment, and the 2005/2006 LCS stock assessment, NMFS has determined that a number of shark fisheries are overfished and an amendment to the 2006 Consolidated HMS FMP is needed to implement management measures to rebuild overfished stocks and prevent overfishing.

Due to timing, it is likely that the final rulemaking for this amendment will not be effective before the 2008 first trimester season begins on January 1, 2008. Thus, NMFS will likely be taking additional action concerning the 2008 first trimester season. However, NMFS anticipates that the final action for this amendment will replace all previous shark regulations. As such, it is possible that the 2008 first trimester season action and the final rule for this amendment will complement each other.

As described in the proposed rule, in addition to the management measures described in this document, NMFS is also making clarifications and other changes to the regulatory text. These changes include updating the handling and dehooking equipment requirements for smalltooth sawfish to maintain compliance with the 2003 Biological Opinion as amended on March 23, 2007. Furthermore, this rule would also modify the frequency of shark stock assessments conducted by the Agency and clarify the timing of issuing the annual Stock Assessment and Fishery Evaluation (SAFE) Report.

1.4 Objectives

Consistent with the Consolidated HMS FMP objectives, the Magnuson-Stevens Act, and other relevant Federal laws, the specific objectives of this action are to:

- Implement rebuilding plans for sandbar, dusky, and porbeagle sharks;
- Provide an opportunity for the sustainable harvest of blacktip sharks and other sharks, as appropriate;
- Prevent overfishing of Atlantic sharks;

- Analyze bottom longline time/area closures and take necessary action to maintain or modify the closures, as appropriate;

- Improve, to the extent practicable, data collections or data collection programs.

1.5 Other Considerations

Fisheries Disasters

NMFS received several comments concerning declaration of a fisheries disaster. Under certain circumstances under the Magnuson-Stevens Act, a commercial fishery disaster can be declared by the Secretary. This includes commercial fishery failures due to a fishery resource disaster as a result of "man-made causes" beyond the control of fishery managers to mitigate through conservation and management measures, including regulatory restrictions to protect the marine environment. A commercial fishery failure occurs when commerce in or revenues from commerce in the fishery materially decreases or is markedly weakened in a way that can be logically traced to the disaster. Some of the regulatory alternatives being considered in this proposed rulemaking include substantial reductions in future sharks quotas to address overfishing that could result in a commercial fishery failure.

Overfishing by itself, however, is not an acceptable cause of a fishery resource disaster under the Magnuson-Stevens Act 312(a), because overfishing is not considered to be beyond the control of fishery managers to mitigate. However, overfishing may exacerbate a fisheries resource disaster of natural or undetermined causes or causes beyond the control of fishery managers to mitigate. In addition, fishery disasters are not declared before a fishery closure or restriction under the Magnuson-Stevens Act. Declaring a fishery disaster does not automatically close a fishery. Regulations closing or restricting a fishery must first be in place before a determination for declaring a disaster can be assessed. These statements regarding disaster assistance under the Magnuson-Stevens Act are guided by NOAA Policy Directive 31-108-01 (May 8, 2007).

Upon making a fisheries disaster determination, the Secretary is authorized to make funds available "for assessing the economic and social effects of the commercial fishery failure, or any activity that the Secretary determines is appropriate to restore the fishery or prevent a similar failure in the future and to assist a fishing community affected by such failures." Declaring a fishery disaster allows NMFS to request money from Congress to assist fishermen. Subject to the availability of appropriations, a regional economic transition program would provide funds or other economic assistance for disbursement to affected entities in meeting immediate regional shoreside infrastructure needs, financial assistance and job training, and fishing capacity reduction.

At this time, the Agency is unable to declare a fisheries disaster to mitigate the negative economic consequences that may be realized by participants in the shark fishery as a result of the management measures proposed in this rulemaking. As stated above, regulations or restrictions must be in place first. After the final Amendment and final regulations are implemented, NMFS may consider if a determination for fishery disaster is warranted.

Capacity Reduction Programs

The Magnuson-Stevens Act provides for voluntary reduction of excess fishing capacity through fishing capacity reduction programs. Some participants of the Atlantic shark fishery expressed interest in reducing fishing capacity for sharks via some form of buyout program. Buyouts can occur via one of three mechanisms, including: through an industry fee, via appropriations from the United States Congress, and/or provided from any State or other public sources or private or non-profit organizations. A buyout plan is not proposed in this rulemaking, despite requests for consideration from the HMS Advisory Panel and other affected constituents, because the Agency is unable to implement a buyout as a management option. Buyouts must be initiated via one of the aforementioned mechanisms.

Some participants in the shark fishery requested that an industry "business plan" be developed. This business plan was drafted under a cooperative agreement with the Gulf & South Atlantic Fisheries Foundation. The final report was received by NMFS on September 12, 2006 (Gulf & South Altantic Fisheries Foundation, 2006).

The objective of the buyout business plan submitted by the Gulf & South Atlantic Fisheries Foundation was to assess the feasibility of a buyout program within the Atlantic commercial shark fishery. The buyout plan consisted of four components, which included the analysis of socioeconomic impacts to shark-dependent communities; management, policy and resource analysis; calculation of fair-market value for a shark permit and/or vessel, and the development of the buyout business plan. Mailings to shark fishery permit holders were conducted to solicit feedback on options that were considered for the buyout business plan. The options considered included a "reverse buyback" and several permit buyback scenarios. No vessel or non-shark permit buybacks were included in the mailing. The majority of the industry respondents to the study did not support the options being considered in the business plan. Therefore, the report concluded, "An evaluation of the Buyout Business Plan options, and comments received by commercial fishermen, indicates that the Total Allowable Catch of the shark fishery cannot adequately support a buyback which industry would support." The report also concluded that a buyout program within the shark fishery could still be feasible if issues surrounding latent effort and additional financial resources outside of the shark fishery fleet could be attained to implement a buyout program.

The recent stock assessments have indicated that further reductions in shark quotas will be necessary. These reductions will likely further the problem of latent and underutilized capacity in the shark fishery and also further decrease the feasibility of an industry financed buyout. Given the negative responses to the industry-initiated buyout business plan by permit holders, NMFS is not analyzing a buyout option in this amendment. However, should appropriations be made available or another business plan be presented to the Agency, NMFS would consider these, as appropriate.

2005/2006 Sandbar Stock Assessment

A report entitled "Report to Directed Shark Fisheries, Inc. on the 2006 SEDAR 11 Assessment for Sandbar Shark" prepared by Dr. Frank J. Hester and Dr. Mark Maunder was received by the National Marine Fisheries Service (NMFS) during the scoping period for

Amendment 2 to the Consolidated HMS FMP. This report provided a critique of the sandbar shark stock assessment methods, data, and results. The authors have concerns regarding which data sets were used in the assessment, selectivity curves employed, appropriateness of catch series included, the age-at-maturity *ogive* for sandbar sharks, and the selection of biological parameters for sandbar sharks. During the review workshop held June 5-9, 2006, the panel selected by the Center for Independent Experts (CIE) found that the data and the models employed during the data and assessment workshops, respectively, were the best currently available for evaluating the stock status of sandbar sharks. The Agency has sent a formal response to the authors addressing their concerns and is moving forward with management measures consistent with the recommendations of the stock assessments as they remain the best available for evaluating the stock status of sharks. The report submitted by Dr.'s Hester and Maunder and the Agency response are included in Appendix B.

Circle Hooks

The Agency is not aware of any research documenting the conservation benefits of employing circle hooks in bottom longline (BLL) fisheries targeting shark. The efficacy of circle hooks for reducing bycatch and post hooking mortality of sea turtles are well-documented in other fisheries, including the HMS pelagic longline (PLL) fishery. A study was recently published by Read (2007) which summarizes the results of field trials testing circle hooks in fisheries in the western North Atlantic, the Azores, the Gulf of Mexico, and Ecuador. The author recommends that while circle hooks may potentially reduce the mortality of sea turtles captured in (pelagic) longline fisheries, they should be field tested in a rigorous experiment before they are required or employed in any fishery. Furthermore, circle hooks will not reduce sea turtle mortality in every pelagic (longline) fishery, rather, each case needs to be tested prior to circle hooks being required (Read, 2007). The Agency is not proposing that circle hooks be required for BLL fisheries targeting shark at this time because of the lack of data demonstrating conservation benefits in BLL fisheries, potential inconsistencies between Council-managed and HMS BLL fisheries that may occur as a result of requiring circle hooks, and observer data indicating that circle hooks are already the most frequently used type of hook on trips targeting shark in the South Atlantic and Gulf of Mexico regions. The preferred alternative described in this document may provide a mechanism to conduct the field trials necessary to appropriately assess the efficacy of circle hooks for reducing bycatch and post-hooking mortality of sea turtles in the shark BLL fishery.

References

Gulf & South Altantic Fisheries Foundation, Inc. 2006. Development of a Buyout Business Plan for the Southeast U.S. Commercial Shark Fishery. Cooperative Agreement No. NA17FD2367 (GSAFFI #84).

Read, A. J. 2007. Do circle hooks reduce the mortality of sea turtles in pelagic longlines? A review of recent experiments. Biological Conservation 135:155-169.